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Cnidae of two species of Discosomatidae (Cnidaria: Anthozoa: Corallimorpharia) from Brazil

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Abstract.—The cnidae of *Discosoma carlgreni* (Watzl, 1922) and *Discosoma sanctithomae* (Duchassaing & Michelotti, 1860) are described and illustrated. Five types (sensu Schmidt 1969, 1974) were observed: spirocysts, b-rhabdoids, p-rhabdoids D, holotrichs I and holotrichs II. An unusual variety of holotrich occurred in the tentacles and column that had not been reported previously. These species are distinguished based on the distribution and size of the types of cnidae. The importance of qualitative studies of corallimorpharians cnidae is discussed.

This paper investigates the diversity of cnidae that occur in the corallimorpharians *Discosoma carlgreni* (Watzl, 1922) and *D. sanctithomae* (Duchassaing & Michelotti, 1860) from Brazil, as well as their taxonomic value.

The diagnostic value of cnidae in different structures of cnidarians has been examined by several authors (e.g., Weill 1934, Russell 1938, Carlgren 1949, Cutress 1955, Schmidt 1972, 1974, Mariscal 1974, den Hartog 1980, Fautin 1986, England 1991, Williams 1996, Pires 1997, Östman & Hydman 1997).

Corallimorpharia is a relatively small order of skeletonless Anthozoa, morphologically intermediate between sea anemones and corals. Many authors consider them most closely related to corals (e.g., Duerden 1904, Stephenson 1921, Schmidt 1974, den Hartog 1980, Fautin & Lowenstein 1992, Chen et al. 1996, Pinto & Belém 1997, Pires & Castro 1997). Contributions to the systematics of the Discosomatidae, based on morphological and anatomical characters, have been made by several authors (e.g., Duchassaing & Michelotti 1864, Duerden 1900, Stephenson 1921, Carlgren 1940, 1949, Corrêa 1964, Schmidt 1972, 1974, den Hartog 1980, Schlenz & Belém 1982). The revision of the Caribbean shallow-water Corallimorpharia, as set forth by den Hartog (1980), provided a comprehensive review of the morphology, anatomy, histology and classification of this group. den Hartog (1980) rearranged the family Discosomatidae Duchassaing & Michelotti, 1864 on the basis of an array of material from the Caribbean. He united the five genera of Actinodiscidae (Carlgren, 1949) in the genus *Discosoma* Rüppell & Leuckart, 1828. den Hartog (1980) concluded that the order Corallimorpharia does not fundamentally differ from corals and should be included as a separate sub-order in the Scleractinia.

The cnidom of the Discosomatidae was previously studied by Watzl (1922), Carlgren (1927, 1949), Corrêa (1964), den Hartog (1980) and Schlenz & Belém (1982), but these studies were not sufficiently detailed to provide a good understanding of the cnidae in this group.

Materials and Methods

Specimens of *Discosoma carlgreni* (Fig. 1A) and *D. sanctithomae* (Fig. 1B) were collected from 1990 to 1993 and deposited in the Cnidaria collection of the Museu Nacional/Universidade Federal do Rio de Janeiro, Rio de Janeiro (MNRJ). For this study, 57 specimens of *D. carlgreni* and 42 specimens of *D. sanctithomae* were examined. Both species were also acquired by exchange with Mexico and Cuba in order to carry out a comparative study. Specimens of *D. carlgreni* were found at the South Coast of the state of Espírito Santo and Bahia. So far, *D. sanctithomae* has been found only in Abrolhos Archipelago, between the channel of Redonda and Siriba Islands (see Appendix for details).

Material was collected by snorkel and SCUBA diving at depths between 1 m and 16 m, using a hammer and chisel. Living animals were placed in plastic sacks with water from their site of collection and transported on ice. Specimens were anesthetized by slowly adding 1:1 solution of 8% $MgCl_2$ and sea water. After anesthetization, they were fixed in 4% formalin. Cnidae were studied in squash preparations of living and preserved specimens. A fragment of tissue was squashed and spread on a slide. Five structures were examined: discal tentacle, marginal tentacle, column, stomodaeum and mesenterial filament. Measurements were made only on undischarged capsules. At least 40 length/width measurements were made of each nematocyst type in each structure examined. Measurements were made with light microscopy at magnifications up to 1250× with differential interference contrast optics (Nomarski), using an eyepiece micrometer. Drawings were made with a camera lucida. Cnidae were classified according to the nomenclatures of Weill (1934, later modified by Carlgren 1940), Schmidt (1969, 1972, 1974) and den Hartog (1980).

Results

Five types of cnidae were observed: spirocysts, b-rhabdoids, p-rhabdoids D, holotrich I and holotrich II. The cnidae were classified as follows.

Spirocysts (Figs. 3A, 6E).—Elongate and thin-walled capsule with a long tube coiled in numerous spirals, tubule without spines.

Remarks.—This variety was sparse but typical of the marginal tentacles of both species. The capsules reached up to 18 μm in length and 3.1 μm in width. Eight undischarged capsules in each species were observed. They were not included in Table 1 due to their sparseness.

B-rhabdoids.—Varied in shape and size, capsules generally oval in aspect. The thread of the b-rhabdoids is always armed with spines, not having a clear difference between the width of the proximal part of the tubule and that of the distal portion. We observed two morphological varieties of b-rhabdoids in undischarged capsules:

B-rhabdoids^1 (Figs. 2B, 3C, 4B, 6F, 7B, Table 1).—Capsule oval to cylindrical in shape, of refractive contrast. In the undischarged state, the basal portion of the tubule is shorter and thinner than that of b-rhadoids^2, up to 0.33 of the length of the capsule. Sometimes the basal part appears slightly curved, the tubule being arranged in few irregular coils.

Remarks.—The undischarged capsules from the column may be occasionally confused with holotrich II, due to little refractive contrast.

B-rhabdoids^2 (Figs. 2A, 3B, 4A, Table 1).—Capsule transparent, elongate, very small and of refractive contrast. Its basal portion is short, refractive and clear.

P-rhabdoids D.—Characterized by a notably wide tubule ending with a funnel-shaped "V" with two distinct parts: large basal shaft and tapered distal tubule. The thread is long, bearing spines. We observed two morphological varieties of p-rhabdoids D in undischarged capsules:

P-rhabdoids D^1 (Figs. 2C, D, 3D, 4C, D,

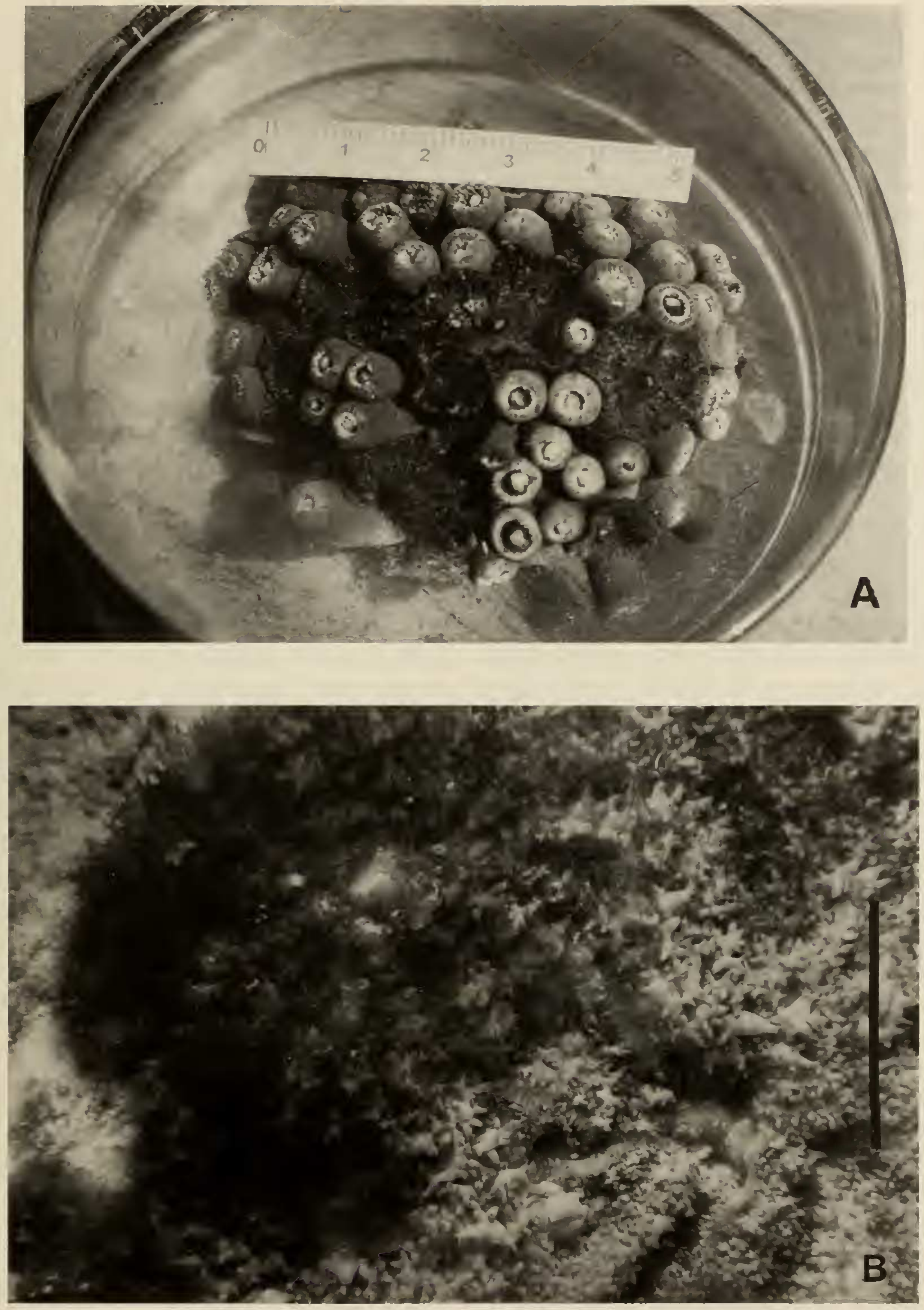

Fig. 1. A, *Discosoma carlgreni.* Specimens collected among *Zoanthus* sp. at Santa Cruz, Aracruz, ES. Scale: 5 cm. B, *D. sanctithomae.* Aggregation from study site at Abrolhos Archipelago, between the channel of Redonda and Siriba Islands. Scale: 2 cm.

G, 5B, C, 6A, B, G, H, 7A, H; 8A, B, Table 1).—Capsule cylindrical, slightly curved, of refractive contrast. The shaft has obvious turns of spines that are up to 0.5 of the capsule length.

Remarks.—This variety was rather common and also occurred in all structures examined in both species. It also occurred in two size classes in the discal tentacles, column and mesenterial filaments. In the filaments of *D. sanctithomae* some transparent thin-walled capsules, with rich contrast in the shaft, were observed (Fig. 8B).

P-rhabdoids D^2 (Fig. 7D, Table 1).—Relatively large elongate capsule, cylindrical, slightly curved and of refractive contrast. Shaft with clear turns of spines can reach up to 0.5 length of the undischarged capsule. A long tubule is irregularly arranged inside the capsule.

Holotrichs—We observed two morphological varieties of holotrich in both species:

Holotrichs I (Figs. 2E, G, 3F, G, 4F, H, I, 5A, D, 6C, D, I, K, 7E, F, G, I, 8C, D, Table. 1).—Capsules of various sizes, filled with a tubule having a long figure eight form, of rich contrast in several turns (Figs. 2G, 6K). In the discharged state, the tubule contains conspicuous spines of equal size distributed along almost its entire length, except for a short, naked basal portion. The distal end of the tubule presents an abrupt tapered distal tip, completely devoid of spines and measuring up to 30 μm (Figs. 2G, 6D).

Remarks.—The distal end of the tubule of these nematocysts was previously described by den Hartog (1980) as a terminal tubule. The terminal tubule can be seen only when the tubule is totally discharged. Holotrichs I, which are common, occurred in two size classes throughout all structures examined, except for the presence of only small capsules in the column of *D. carlgreni* (Fig. 4F, Table 1). This type ranges in size from the small (e.g., in marginal tentacles—25–34 by 9.4–18 μm) to large (e.g., in filaments—76.9–168.1 by 25–75 μm). According to den Hartog (1980), these nematocysts are the most voluminous anthozoan cnidae, reaching up to 250 by 80 μm. We also observed a particular shape of the holotrichs I in the stomodaeum. They varied from oblong to cylindrical (Figs. 4I; 7G).

Holotrichs II (Figs. 3E, 6J, Table 1).—Sharply distinguished from holotrich I in capsule shape and in having small spines with little contrast. The capsule is opaque, cylindrical, with coiled tubule in small tums, filling the entire undischarged capsule. The spines are smaller than those of holotrichs I and of little contrast and difficult to view with light microscopy.

Remarks.—These were exclusive to the marginal tentacles in both species. An unusual variety of this category is smaller and cylindrical, with a tubule filling the whole capsule and with spines smaller than those of the typical holotrich II. These capsules seem to differ from the holotrich II, except for their shape, with spines so reduced that they appear like spots distributed inside the capsule with irregularly coiled small turns. Presently, we consider it a holotrich II, occurring in the discal tentacles and in the column of *D. carlgreni* (Figs. 2F, 4E); in the column of *D. sanctithomae,* they were large (Fig. 7C). This variety has never been reported from the discal tentacles and column in the Discosomatidae.

Discussion

We identified seven types of cnidae in the Discosomatidae. The presence of spirocysts in this group was discussed by Carlgren (1949) and den Hartog (1980). Carlgren (1949) recorded the sparseness of spirocysts in the Discosomatidae, claiming that they were found in the tentacles. den Hartog (1980:36) characterized the family by the absence of spirocysts and stated "not only are spirocysts absent in the tentacles of Discosomatidae, other ectodermal cnidae too are very scarse . . . the tentacles . . . are non-retractile, non-motile . . . are either re-

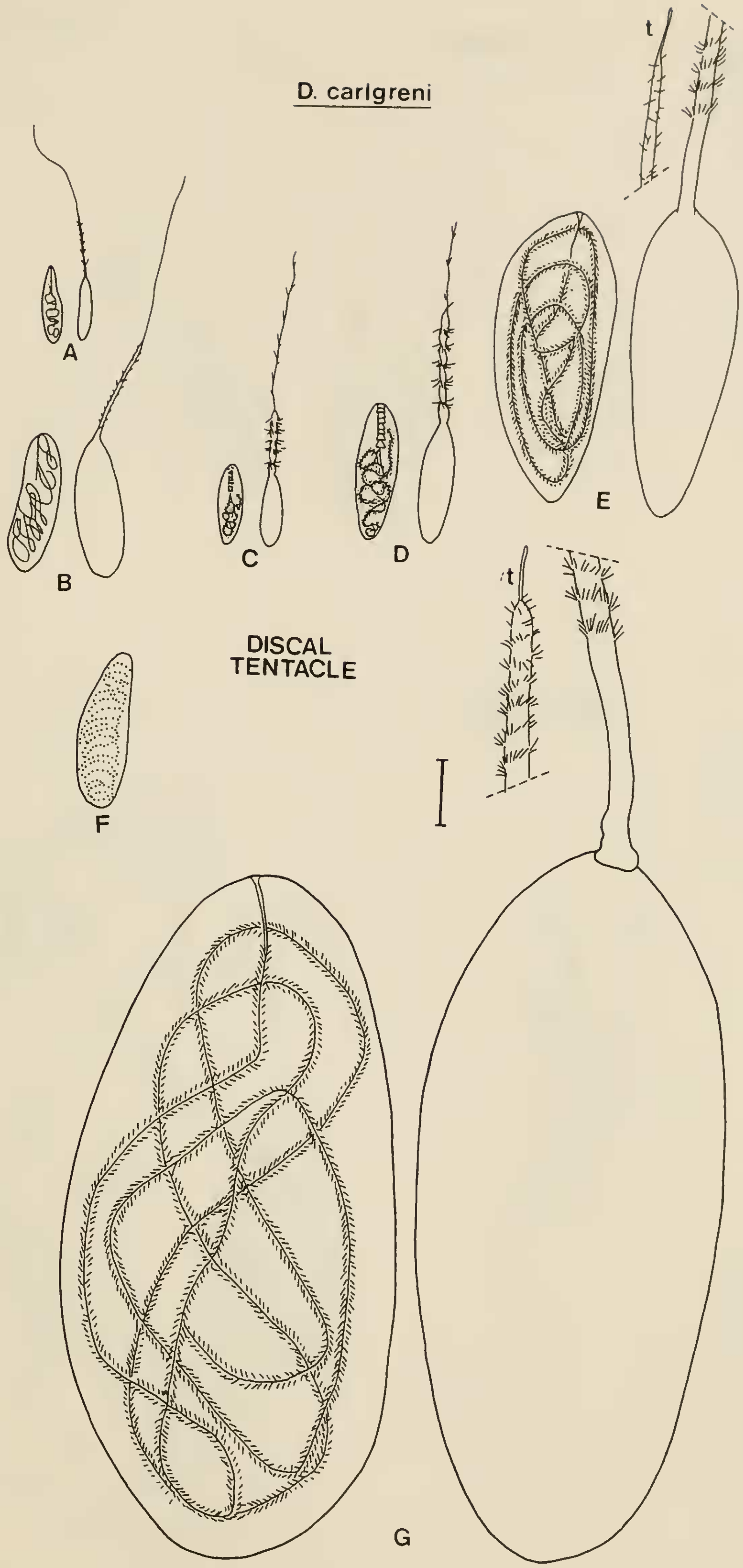

Fig. 2. Cnidome of *Discosoma carlgreni,* Discal tentacles. A, b-rhabdoids[2]; B, b-rhabdoids[1]; C, D, p-rhabdoids D[1]; E, G, holotrichs I; F, holotrichs II. Abbreviation: t = terminal tubule. Scale: 10 μm.

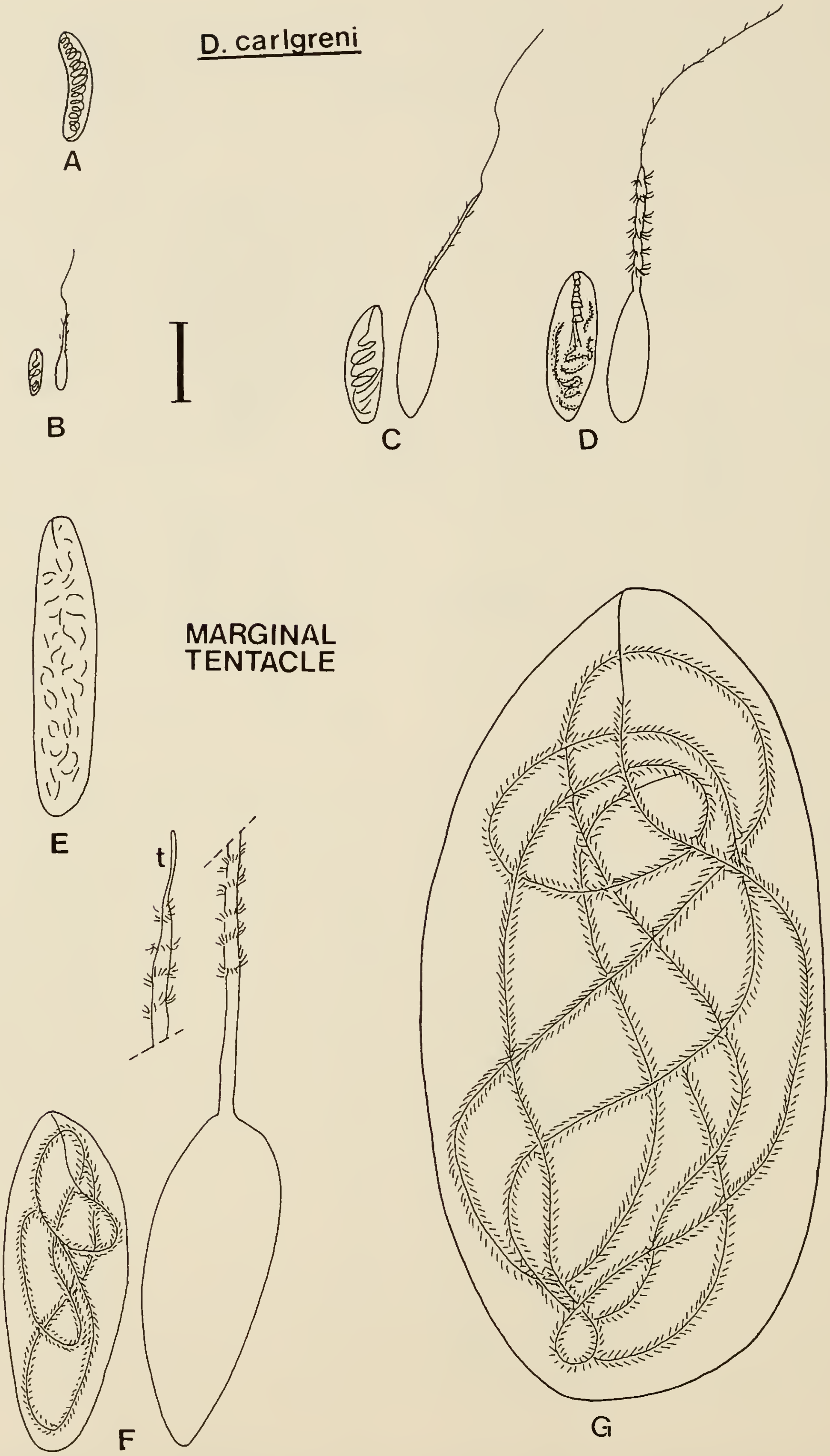

Fig. 3. Cnidome of *Discosoma carlgreni,* Marginal tentacles. A, spirocysts; B, b-rhabdoids^2; C, b-rhabdoids^1; D, p-rhabdoids D^1; E, holotrichs II; F, G, holotrichs I. Abbreviation: t = terminal tubule. Scale: 10 μm.

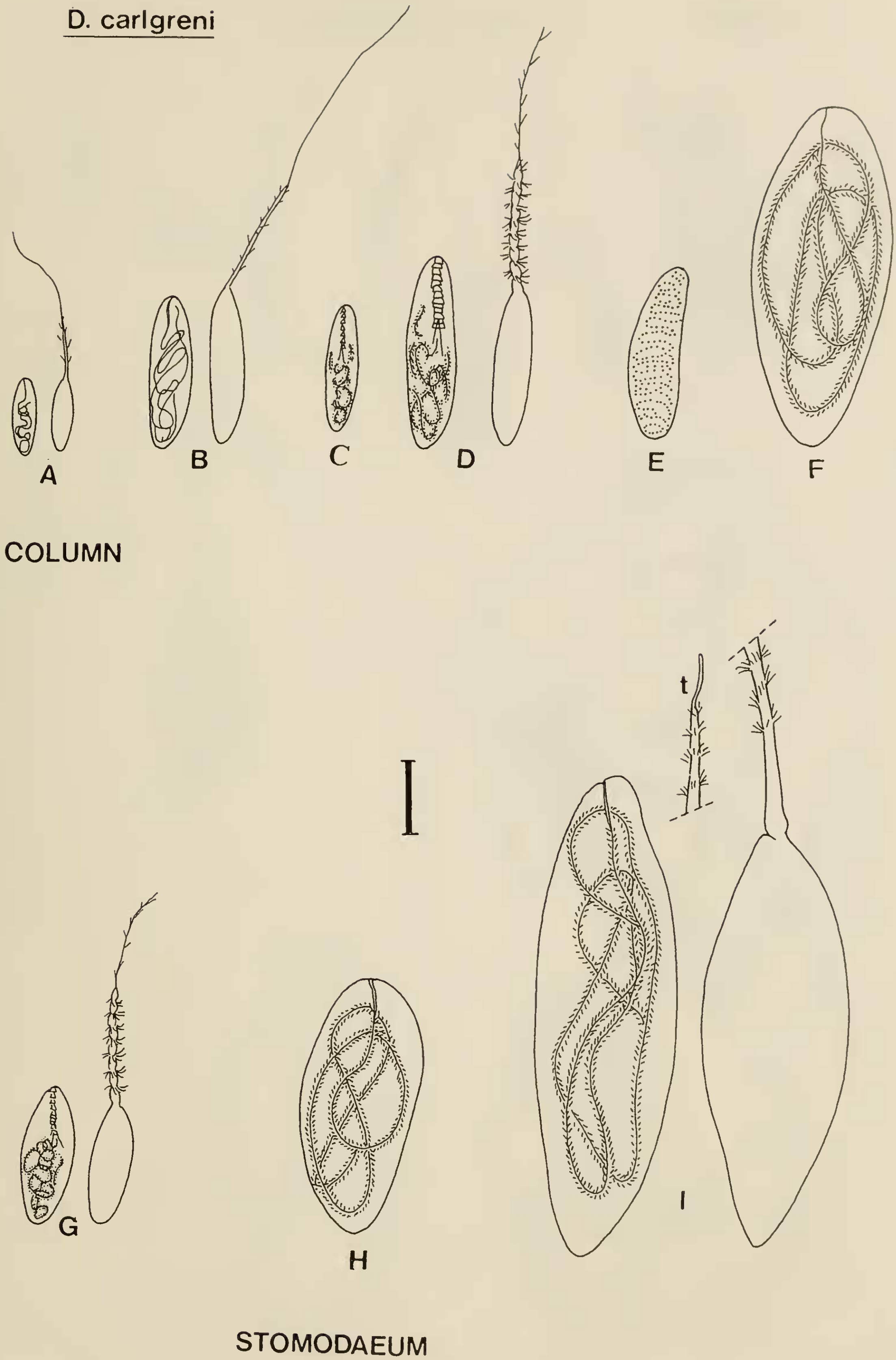

Fig. 4. Cnidome of *Discosoma carlgreni,* Column A–F; Stomodaeum G–I. A, b-rhabdoids^2; B, b-rhabdoids^1; C, D, G, p-rhabdoids D^1; E, holotrichs II; F, H, I, holotrichs I. Abbreviation: t = terminal tubule. Scale: 10 μm.

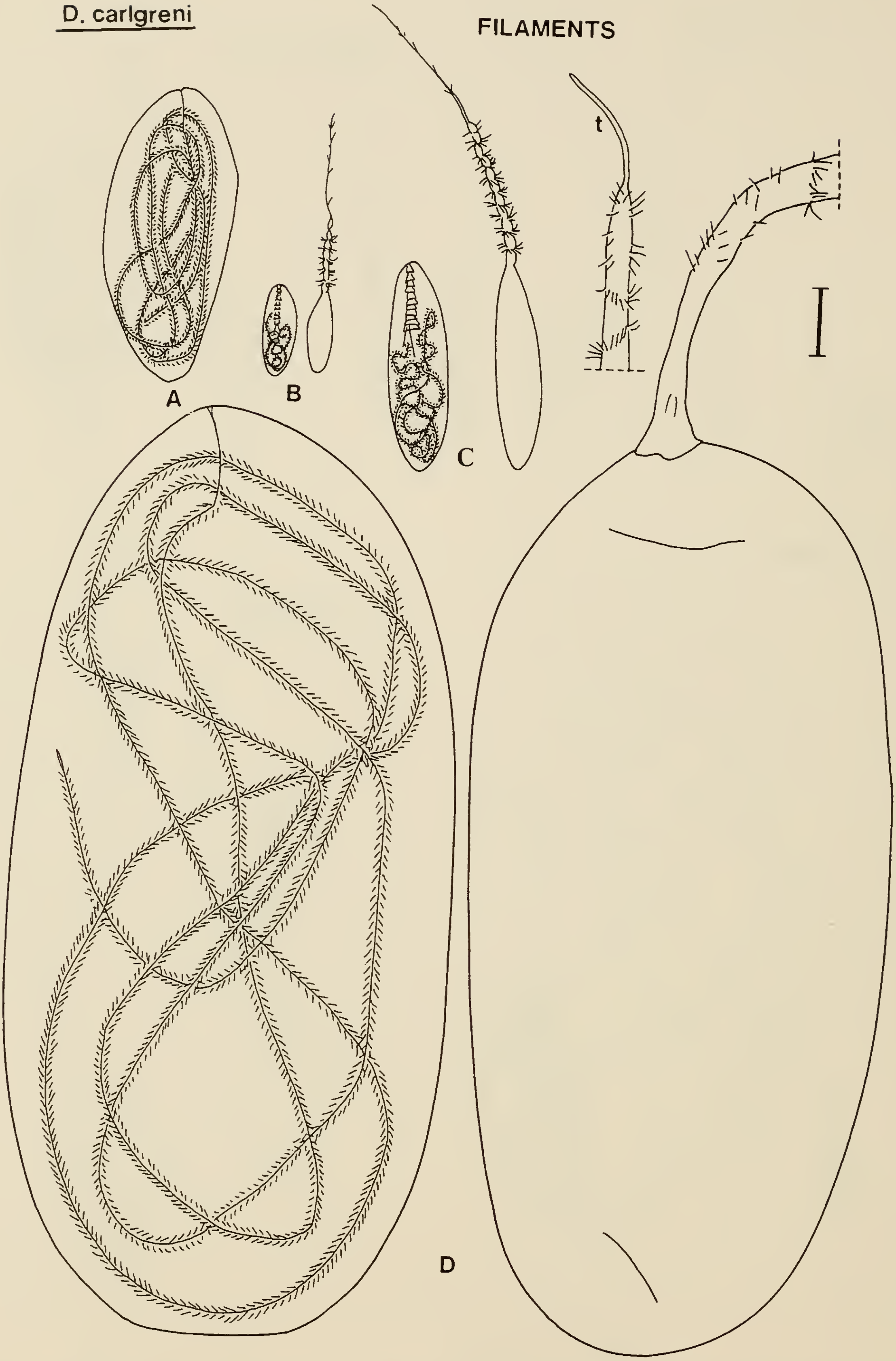

Fig. 5. Cnidome of *Discosoma carlgreni*, Filaments. A, D, holotrichs I; B, C, p-rhabdoids D^1. Abbreviation: t = terminal tubule. Scale: 10 μm.

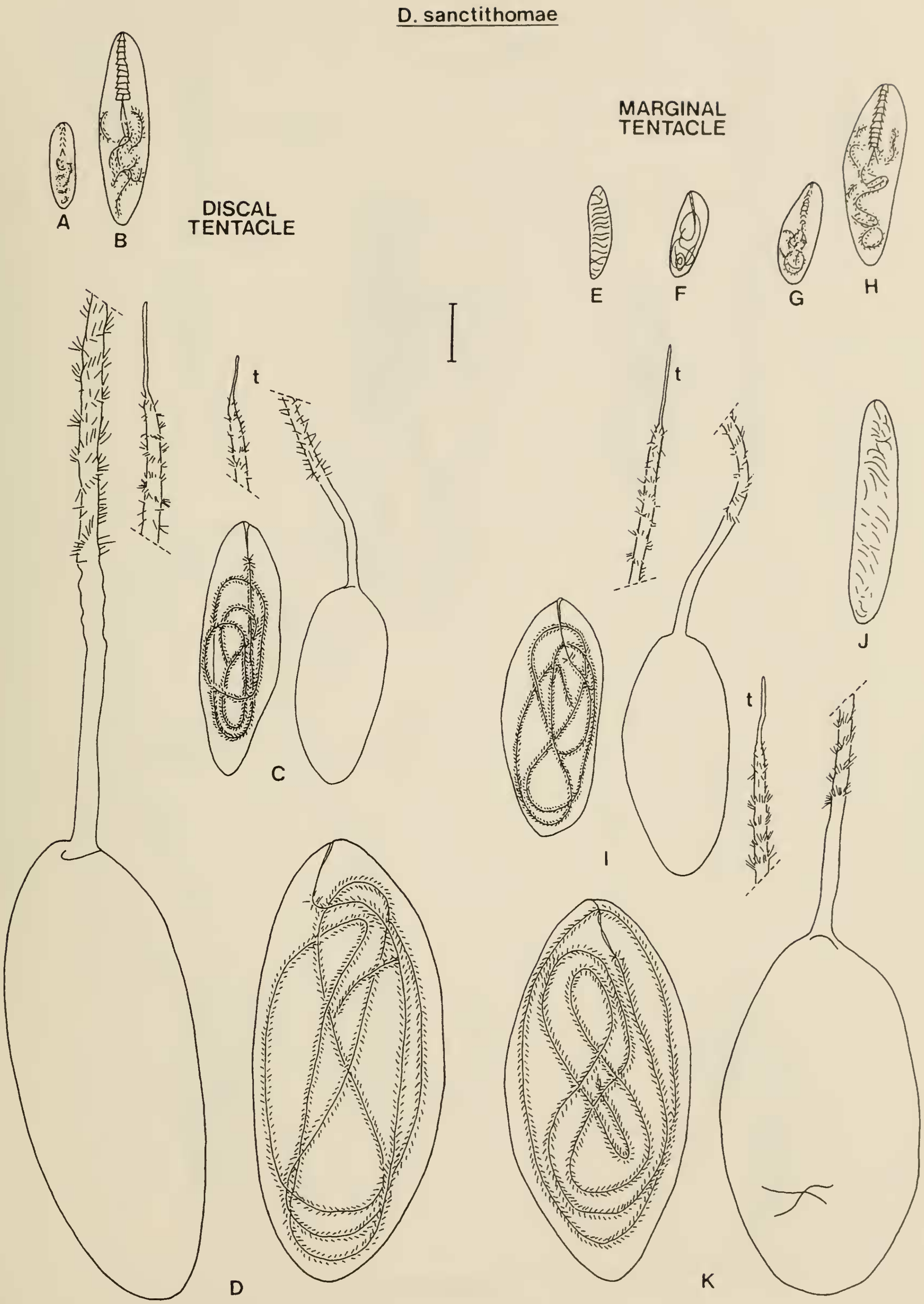

Fig. 6. Cnidome of *Discosoma sanctithomae,* Discal tentacles A–D, Marginal tentacles E–K. A, B, G, H, p-rhabdoids D[1]; C, D, I, K, holotrichs I; E, spirocysts; F, b-rhabdoids[1]; J, holotrichs II. Abbreviation: t = terminal tubule. Scale: 10 μm.

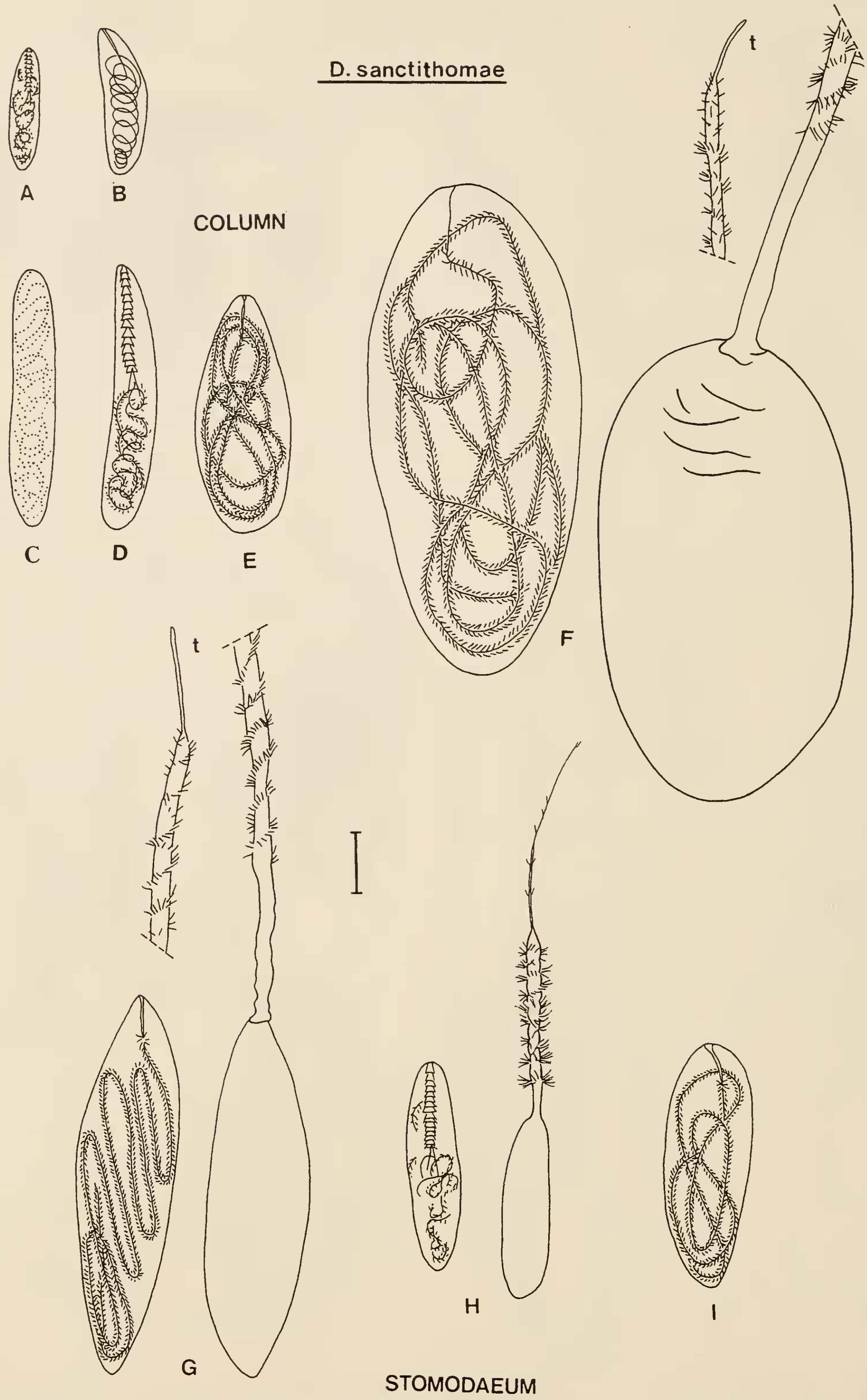

Fig. 7. Cnidome of *Discosoma sanctithomae,* Column A–F, Stomodaeum G–I. A, H, p-rhabdoids D[1]; B, b-rhabdoids[1]; C, holotrichs II; D, p-rhabdoids D[2]; E–G, I, holotrichs I. Abbreviation: t = terminal tubule. Scale: 10 μm.

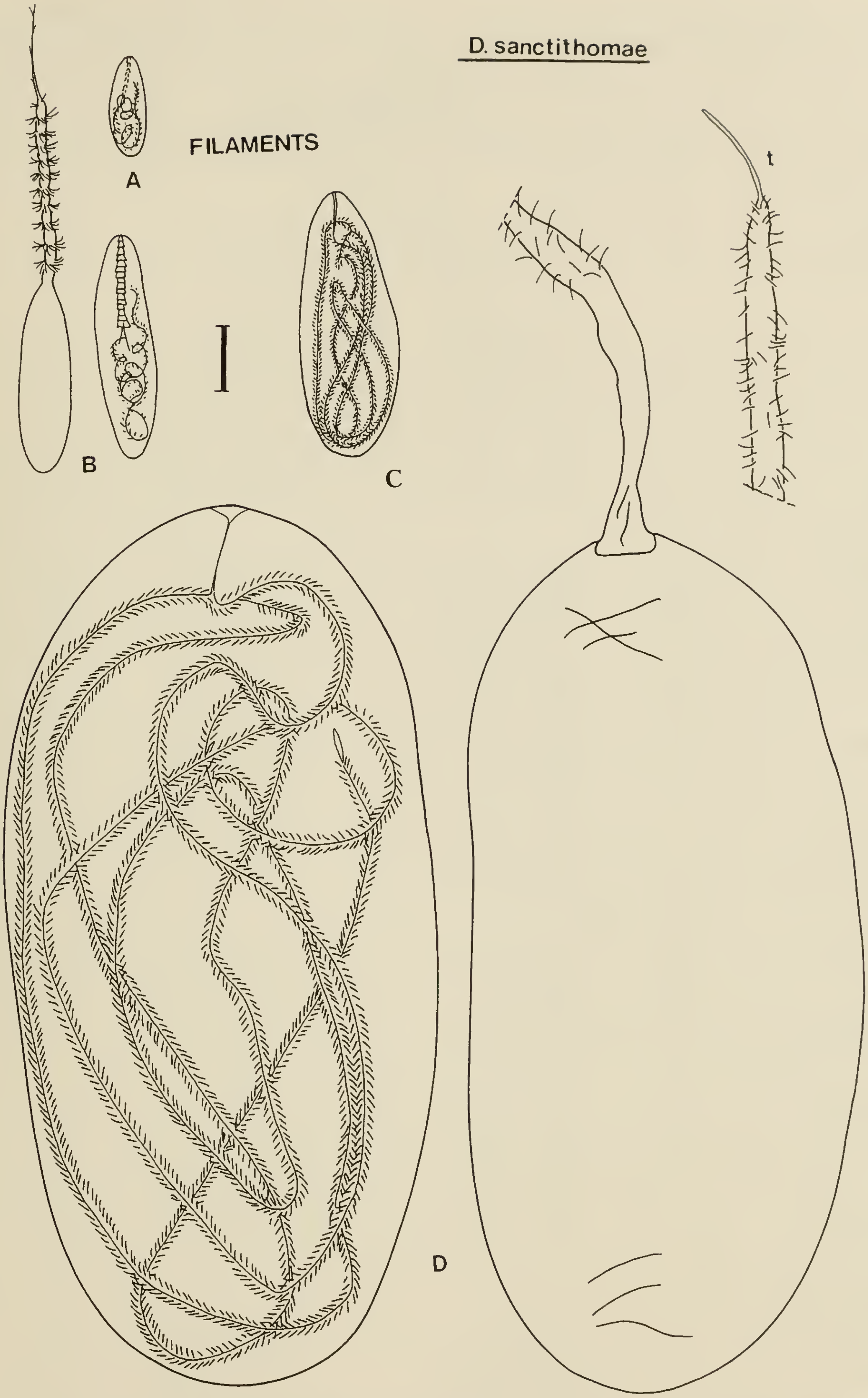

Fig. 8. Cnidome of *Discosoma sanctithomae,* Filaments. A, B, p-rhabdoids D¹; C, D, holotrichs I. Abbreviation: t = terminal tubule. Scale: 10 μm.

Table 1.—Distribution measurements of cnidae. Sp = species, A = *Discosoma carlgreni,* B = *D. sanctithomae. n* = number of capsules measured, F = figure.

Structure Cnidae type	Sp	Average and range of length and width of nematocyst capsules		*n*	F
		Length	Width		
Discal tentacles					
b-rhabdoids^{1}	A	14.4 (12.5–17.5)	4.7 (1.9–6.3)	41	2B
b-rhabdoids^{2}	A	9.5 (7.5–11.3)	1.8 (1.3–3.0)	41	2A
p-rhabdoids D^{1}	A	12.9 (8.8–17.5)	3.5 (1.9–5.6)	66	2C
		25.4 (18.8–30.6)	6.6 (5.6–8.8)	54	2D
	B	13.3 (10.6–17)	3.5 (2.5–5.0)	40	6A
		33.2 (20–46.9)	7.7 (4.4–11.3)	50	6B
holotrichs I	A	37.2 (28–41.3)	13.3 (6.9–18.1)	76	2E
		72.1 (45–123.1)	31.2 (18.1–55.6)	45	2G
	B	34 (26.9–43.8)	14.8 (11.3–20)	83	6C
		69 (57.5–85)	32.4 (21.9–45.8)	92	6D
holotrichs II	A	16.5 (11.3–21.9)	4.9 (3.1–6.9)	42	2F
Marginal tentacles					
b-rhabdoids^{1}	A	15.5 (12.2–23.8)	4.9 (3.8–6.9)	65	3C
	B	15.6 (11.3–20)	4.0 (2.5–5.6)	72	6F
b-rhabdoids^{2}	A	8.9 (6.3–10.9)	1.9 (0.9–3.1)	40	3B
p-rhabdoids D^{1}	A	13.2 (8.8–16.3)	4.2 (1.9–6.9)	79	3D
	B	13.5 (10–20)	3.8 (2.5–5.6)	50	6G
		33.7 (23.1–49)	8.0 (5.6–11.9)	45	6H
holotrichs I	A	35.6 (27.5–40.6)	12.7 (9.6–20.6)	65	3F
		82.2 (50.6–125)	34.2 (20.6–49.4)	60	3G
	B	31.6 (25–34.4)	13.6 (9.4–18.1)	52	6I
		68.0 (54.4–83.1)	30.0 (17.5–40.3)	77	6K
holotrichs II	A	29.7 (8.8–43.8)	5.4 (2.5–10.6)	159	3E
	B	24.8 (13.1–37)	5.1 (3.1–13.8)	110	6J
Column					
b-rhabdoids^{1}	A	15.7 (13.1–20)	5.5 (3.8–6.3)	63	4B
	B	19.6 (16.3–25)	5.5 (3.8–7.5)	50	7B
b-rhabdoids^{2}	A	9.6 (5.6–12.5)	2.0 (1.3–3.8)	40	4A
p-rhabdoids D^{1}	A	13.9 (10-17.5)	4.6 (2.5–5.3)	60	4C
		24.1 (19.1–28.8)	6.9 (6.2–8.1)	40	4D
	B	14.5 (10–20.6)	4.0 (2.5–6.3)	45	7A
p-rhabdoids D^{2}	B	41.1 (25–58.8)	8.2 (4.4–13.1)	64	7D
holotrichs I	A	34.6 (30.6–37.5)	12.7 (7.3–16.3)	50	4F
	B	34.1 (28.1–38.1)	15.4 (11.3–18.8)	58	7E
		76.1 (61.9–94.4)	34 (25–42.5)	53	7F
holotrichs II	A	20 (13.8–19)	6.3 (3.8–9.4)	65	4E
	B	33.7 (26.3–40.6)	4.0 (2.5–6.3)	40	7C
Stomodaeum					
p-rhabdoids D^{1}	A	13.5 (8.8–19)	3.9 (1.9–6.3)	50	4G
	B	17.9 (10.6–32.5)	4.7 (2.5–9.4)	52	7H
holotrichs I	A	37.3 (32.5–40.6)	14.1 (10.6–17.5)	55	4H
		54.6 (45.6–70)	18.1 (10.9–22.5)	65	4I
	B	33.7 (25.6–40)	13.3 (5.6–18.8)	57	7I
		58.8 (44.4–78.8)	18.9 (11.9–35.6)	65	7G
Filaments					
p-rhabdoids D^{1}	A	18.2 (11.9–23.7)	4.9 (4.5–8.8)	63	5B
		27 (25–33.1)	6.9 (5.0–10)	79	5C
	B	14.6 (8.8–20)	3.6 (1.9–6.3)	40	8A
		31.5 (24.4–38.1)	8.2 (5.0–15)	78	8B

Table 1.—Continued.

Structure Cnidae type	Sp	Average and range of length and width of nematocyst capsules		*n*	F
		Length	Width		
holotrichs I	A	36.9 (26.2–53.8)	13.6 (7.5–18.8)	50	5A
		117.6 (90.6–175.2)	49 (31.2–72)	69	5D
	B	31.8 (23.8–37.5)	13.1 (5.0–18.1)	69	8C
		146.5 (76.9–168.1)	60.3 (25–75)	73	8D

duced to insignificant, wartlike protuberances or developed into vesicle-like structures . . ." den Hartog (1980) pointed out the difficulty of accepting that these tentacles were functional catching devices because the Discosomatidade have been associated with zooxanthellae that provide nutrition to the animals. However, several Actiniaria, such as *Stichodactyla haddoni* (Saville-Kent, 1893) and *Stichodactyla duerdeni* (Carlgren, 1900), with a large number of spirocysts, have similar tentacles and zooxanthellae. In this study, we found spirocysts in the marginal tentacles of both species, thus confirming Carlgren's finding.

Although den Hartog (1980) accepted Schmidt's system (1972, 1974) of terminology for corallimorpharian cnidae, he preferred to adopt Stephenson's system of classification. den Hartog (1980) considered Schmidt's b- and p-rhabdoids (=b and p-mastigophores sensu Carlgren, 1940) as synonyms of spirulae and penicilli sensu Stephenson (1928), respectively. Therefore, he recorded four types of cnidae for the Discosomatidae: spirulae, penicilli D, penicilli E and homotrich. In agreement with Belém & Schlenz (1982), we adopted Schmidt's classification because it provides descriptions and illustrations of the different types of corallimorpharian nematocysts, based on many specimens.

The comparative study carried out with specimens of *Discosoma carlgreni* from Mexico and *D. sanctithomae* from Cuba has confirmed that they are conspecific with the Brazilian species, respectively.

The varieties of b-rhabdoids^1 and b-rhabdoids^2 qualitatively separate *Discosoma carlgreni* from the *D. sanctithomae.* The first variety occurred particularly in the tentacles as well as in the column of both species, except in the discal tentacles of *D. sanctithomae.* Such absence was also verified by den Hartog (1980). The b-rhabdoids^2 occurred particularly in the tentacles and column of *D. carlgreni.* Schlenz & Belém (1982) recorded two size-classes of b-rhabdoids in the stomodaeum of *D. carlgreni,* neither of them observed by den Hartog (1980) nor in this study.

The p-rhabdoids D^1 were easily seen in all structures of the body. The distribution and occurrence of these nematocysts seemed uniform in both species, except for the presence of only one small size class in the marginal tentacles of *D. carlgreni* as well as in the column of *D. sanctithomae.*

Contrary to the view of den Hartog (1980) concerning the total absence of p-rhabdoid D in the stomodaeum in Corallimorpharia, we observed a variety p-rhabdoid D^1 in this structure in both species. These nematocysts were rather common, also being larger in *Discosoma sanctithomae.* Our results are in agreement with those of Corrêa (1964), who observed the microbasic p-mastigophore (=p-rhabdoid D sensu Schmidt) in the stomodaeum of *D. sanctithomae.* We also observed the variety p-rhabdoid D^2 in the column of *D. sanctithomae.* None of the previous works have registered this variety before.

Another feature which distinguishes *Discosoma sanctithomae* from *D. carlgreni* is the size of holotrich I. In the column of *D. sanctithomae,* both large and small ones occur, whereas in *D. carlgreni* they are small.

We noticed in all discharged capsules of holotrich I, an abruptly tapered distal tube called terminal tube by den Hartog (1980). This terminal portion is flat, hardly refractive and spineless, being also observed by Schlenz & Belém (1982). This portion can be observed in squash preparations, though sometimes it is not fully discharged so the terminal tube of most remains unevaginated. The presence of this tube was previously recognized in the macrobasic p-mastigophores [=holotrich sensu Schmidt (1974) and penicilli E sensu den Hartog (1980)] by Cutress (1955:134). In his words: "these nematocysts have a shaft which is more than three times the length of the capsule and which is abruptly reduced to a thread . . .". Cutress (1955), therefore, suggested that corallimorpharian holotrichs should be termed macrobasic p-mastigophores. Nevertheless, some authors (e.g., Werner 1965, Mariscal 1974) did not accept Cutress' proposal. An alternative and independently derived system, using Stephenson's term penicilli E, was provided by den Hartog (1980). Schmidt (1972, 1974) identified a large holotrich I, commonly occurring in the filaments, stomodaeum and tentacles in the Corallimorpharia, as well as in the Scleractinia, as having the most distinctive spines possessed by anthozoan nematocysts. As indicated by Schmidt (1972, 1974), this type presented a gradual tapering of the tubule.

Studying the cnidae of four species of Brazilian Mussidae, Pires & Pitombo (1992) observed a holotrich I in the mesenterial filaments. However, they did not record in this type the abrupt end of the tube as a vestigial thread. In short, Pires & Pitombo (1992) observed a gradual tapering of the tubule, as mentioned by Schmidt (1974).

den Hartog et al. (1993), who studied the corallimorpharians from the CANCAP expedition, found penicilli E, especially in the filaments, as well as in the tentacles, of five species of Corallimorphidae. However, they did not observe the terminal tube in discharged capsules of penicilli E from the filaments of *Corynactis* sp. den Hartog et al. (1993) added that the previous observations on this type by Cutress (1955) and especially by den Hartog (1980) needed confirmation, considering the fact that the penicilli E were based on few occasions.

In spite of the divergence among terminologies adopted in previous works, we still consider the type holotrich I sensu Schmidt (1972, 1974) the best term to be employed in this paper. To avoid further misunderstanding, the holotrichs I found in Discosomatidae here has an abrupt tapered and spineless distal tip into a terminal tubule (the reason that den Hartog (1980) considered them as penicilli E).

The holotrichs II of the marginal tentacles of *Discosoma carlgreni* are in variably larger than those of *D. sanctithomae.* This nematocyst was also found by den Hartog (1980). According to den Hartog (1980) and Belém & Schlenz (1982), this type occurs only in the marginal tentacles. Nevertheless, an unusual variety of holotrich, observed in the column and discal tentacles, showed size differences, especially in the column of *D. sanctithomae.* This variety had never been found before. We tentatively classify it as Schmidt's holotrich II; further studies of its ultrastructure will provide a more comprehensive description.

The results of this study demonstrate the importance of the nematocysts in distinguishing *Discosoma carlgreni* from *D. sanctithomae.* The varieties of b-rhabdoids and p-rhabdoids D allow us to separate the species.

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Appendix

List of specimens from the Museu Nacional do Rio de Janeiro Cnidaria collection used for this study.

Discosoma carlgreni (Watzl, 1922)

MNRJ. 1796—Brazil, Espírito, Santo Santa Cruz (19°49′08″S and 40°16′43″W), Aracruz, Estação de Biologia Marinha, coll. S. M. Pinto, F. B. Pitombo & F. M. Amaral, 8 Aug 1990, 14 specimens, det. S. M. Pinto Aug 1990.

MNRJ. 1866 and 1867—Brazil, Espírito Santo, Santa Cruz (19°49′08″S and 40°16′43″W), Aracruz, Estação de Biologia Marinha, coll. M. J. C. Belém & E. Schlenz, 8 Sep 1991, 14 specimens, det. M. J. C. Belém & E. Schlenz Sep 1991.

MNRJ. 1868—Brazil, Espírito Santo, Guarapari (20°40′16″S and 40°28′5″W), Três Praias, coll. M. J. C. Belém & E. Schlenz, 5 Sep 1991, 1 specimen, det. S. M. Pinto Sep 1991.

MNRJ. 1878—Brazil, Espírito Santo, Santa Cruz (19°49′08″S and 40°16′43″W), Aracruz, Estação de Biologia Marinha, coll. M. J. C. Belém, E. Schlenz & C. C. Ratto, 8 Sep 1991, 1 specimen, det. M. J. C. Belém Aug 1991.

MNRJ. 2075—Brazil, Bahia, Abrolhos Archipelago (17°20′–18°10′S and 38°35′–39°20′W), Siriba Island, coll. F. B. Pitombo & C. G. Fonseca, 15 Dec 1992, 5 specimens, det. S. M. Pinto Dec 1992.

MNRJ. 2250—Brazil, Bahia, Abrolhos Archipelago (17°20′–18°10′S and 38°35′–39°20′W), Siriba Island, coll. F. B. Pitombo & C. C. Ratto, 19 Dec 1993, 9 specimens, det. S. M. Pinto Dec 1993.

MNRJ. 2259—Brazil, Bahia, Abrolhos Archipelago (17°20′–18°10′S and 38°35′–39°20′W), Chapeirão, coll. F. B. Pitombo, 23 Dec 1993, 13 specimens, det. S. M. Pinto Dec 1993.

MNRJ. 1540—México, Puerto Morelos, Quintana Roo, coll. E. Jordan Dahlgren & F. D. Amaral, 24 Oct 1989, 1 specimen, det. S. M. Pinto Dec 1989.

Discosoma sanctithomae (Duchassaing & Michelotti, 1860)

MNRJ. 2076—Brazil, Bahia, Abrolhos Archipelago (17°20′–18°10′S and 38°35′–39°20′W), Siriba island, coll. F. B. Pitombo & C. G. Fonseca, 15 Dec 1992, 22 specimens, det. S. M. Pinto Dec 1992.

MNRJ. 2251 and 2252—Brazil, Bahia, Abrolhos Archipelago (17°20′–18°10′S and 38°35′–39°20′W), Siriba island, coll. F. B. Pitombo & C. C. Ratto, 19 Dec 1993, 20 specimens, det. S. M. Pinto Dec 1993.

MNRJ. 2109—Cuba, La Habana, Playa, Playa Jaimanitas, coll. A. Herrera, 26 Aug 1992, 4 specimens, det. M. J. C. Belém Feb 1994.

MNRJ. 2110—Cuba, Recife de Punta del Este, Isla de Juventud, coll. A Herrera, 26 Aug 1992, 4 specimens, det. M. J. C. Belém Dec 1992.